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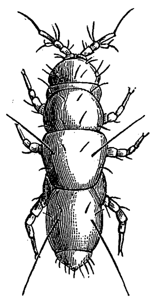
allied to the Scorpions, and one whose affinity is doubtful. The species formerly described and figured as a caterpillar in Vol. II, page 163 of the NATURALIST, is now thought, from the study of additional specimens, to be a worm, the hairs on the body being longitudinally striated, and, according to Dr. Packard, resembling those of Aphrodite.

THE ANCESTRY OF INSECTS; FOSSIL INSECTS AND CRABS, IN ILLINOIS.* —Prof. Haeckel, of Jena, has been speculating as to the ancestors of the articulates. He considers the ancestral form of the crustacea as a zoëa-like creature, resembling the larval or zoëa-stage of the crab. As to the ancestor of the air-breathing, terrestrial articulates (insects, spiders and centipedes), he proposes the theory that it was a zoëa which, probably, about the Devonian Period, adopted a terrestrial life. As this is an age of speculation, we should suggest, that the ancestors of the insects (including the six-footed insects, spiders and myriapods) must have been worm-like and aquatic, and when the type became terrestrial we (still speculating) would imagine a form somewhat like the young Pauropus (Fig. 1) discovered by Sir John Lubbock in England, which combines in a remarkable degree the characters of the myriapods and the degraded wingless insects, such as Smynthurus, Podura, etc. Some such forms may have been introduced late in the Silurian period, for the interesting discoveries of fossil insects in the Devonian of New Brunswick, by Messrs. Hartt and Scudder, and those discovered in the lower part of the Coal Measures, at Morris, Illinois, and described by Messrs. Meek, Worthen and Scudder, reveal carboniferous myriapods, *Euphorberia* (two species), more highly organized than Pauropus, and a carboniferous scorpion (Buthus?), closely resembling a species now living in California; together with another scorpion-like animal, *Mazonia Woodiana;* while the Devonian insects described from St. John, by Mr. Scudder, are nearly as highly organized as our grasshoppers and May-flies. Dr. Dawson has also discovered a well developed milleped (*Xylobius*) in the Lower Coal Measures of Nova Scotia; so that we must go back to the Silurian period in our search for the earliest ancestor, or (if not of Darwinian proclivities) prototype, of insects. As to the earliest Crustacean being a zoëa-form, have we not among the earliest known Crustaceans, the Trilobite (*Paradoxides*) and several allied forms of Lowest Silurian age, whose larval form was, undoubtedly, more or less worm-like, as are certain degraded marine Pill-bugs (*Bopyrus*) of the present day? Messrs. Meek and Worthen describe fossil Shrimps (*Anthropalæmon*) and Sand-fleas, in the Lower Coal Measures of Illinois, associated with a large Eurypterus, being a gigantic shrimp-like animal; a Trilobite (*Euproops Danæ*) resembling our

Fig. 1.



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*The Palæontology of Illinois. Articulate Fossils of the Coal Measures. (Advance sheets of the Report of the Illinois State Survey.) By Messrs. Meek, Worthen and Scudder. September, 1868. 8vo.

Horse-shoe Crab; and several insects are described by Mr. Scudder under the name of *Miamia Danæ*, and *Chestoles lapidea* (a neuropterous insect allied to Miamia); also part of a Cockroach, and a Harvest-man or Daddy-long-legs, allied to, but lower than the spiders, with several other undetermined remains of insects. With such recent discoveries of so highly organized articulate life in rocks so ancient, and with the late discovery of a land-plant in the lower Silurian rocks of Sweden, it seems premature to even guess as to the ancestry of either these or their living representatives.

THE BOOK OF BIRDS AND THE BOOK OF BEASTS.*—From an examination of their contents we do not hesitate to say that they form a valuable addition to our popular-science literature. The engravings are numerous and well done. The subject is treated in a clear and interesting manner, and with the typography and binding, form elegant volumes for the young.

CECIL'S BOOK OF INSECTS.†—A very pleasantly written book, containing chapters about Ants, Bees, Spiders, Dragon-flies, Wasps, Locusts, Mosquitoes, Beetles and Butterflies. The illustrations are as a whole very good, and the stories about insects are reliable and well calculated to interest the young, and induce them to observe the habits of insects and form collections of them.

LIST OF THE LEPIDOPTERA OF NORTH AMERICA.‡—The American Entomological Society, which has issued six volumes of Proceedings, and has entered on the second volume of Transactions, all beautifully illustrated, and indispensable to the study of our insects, and we may add, published remarkably cheap, is now issuing, in Parts, a list of our Butterflies and Moths, by Messrs. Grote and Robinson. The present Part embraces the species of Sphinges, Ægerians, the Thyridæ, Zygænidæ, and the Bombycids, or Silk-worm family, found north of Mexico. The catalogue gives the most important synonyms, and when finished, will be an invaluable book of reference to students of this group of insects.

We should here speak of the remarkable energy shown by the members of this young society, which was incorporated in 1862. With but a single salaried officer it started at once under very adverse circumstances, and established a printing office in its own hall, and issued annually a volume of Proceedings, rivalling in interest and value those published by the Entomological Societies of London, Paris, Berlin and Vienna. Not content with this, its members edited "The Practical Entomologist," designed to acquaint farmers with the habits of the injurious insects, distributing from 5000 to 8000 copies each month, gratuitously the first year, and for a mere trifle the second, when it was obliged to suspend its

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* Cecil's Books of Natural History; Cecil's Book of Beasts; Cecil's Book of Birds. By Selim H. Peabody, M. A. Chicago: Clarke & Co. 12mo.

† Cecil's Book of Insects. By Selim H. Peabody, M. A. Chicago: Clark & Co., 1868. With eleven full-page illustrations. 12mo, pp. 228.

‡ List of the Lepidoptera of North America. By A. R. Grote and C. T. Robinson. Part I. Philadelphia: American Entomological Society, September, 1868. 8vo, pp. 16.